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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,164	11/13/2001	Adrian P. Sparks	Q67243	6469

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EXAMINER

SINGH, DALZID E

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,164

Applicant(s)

SPARKS ET AL.

Examiner

Dalzid Singh

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10-14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-14 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-6, 10-12 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroyanagi et al (US Patent No. 6,072,610).

Regarding claim 1, Kuroyanagi et al discloses a system for hybrid electronic/photonic switching of traffic in a node of a communications network (as shown in Fig. 1), the system comprising:

a plurality of interfaces (20a-20f), the plurality interfaces comprising:

an electronic cross-connect (EXC) adapted to selectively map an electronic signal from a selected first one of the interfaces to a selected second one of the interfaces (as shown in Fig. 1, Kuroyanagi et al shown that the electronic cross-connect (EXC) selectively map an electrical signal between normal condition and fault condition; see col. 2, lines 19-47); and

a photonic cross-connect (PXC) adapted to selectively couple respective optical signal between each selected interface and selected ones of plurality of optical channels of the communications network (as shown in Fig. 1, optical signal between the selected fiber interface is selectively coupled to one of at least two optical channels).

Kuroyanagi et al shows working fiber and standby (protection) fiber which is associated with interface such as (e/o converter or o/e converter). On Fig. 6, Kuroyanagi et al show at least one working interface (20a1) and at least one protection interface (20a2) and differ from the claimed invention in that Kuroyanagi et al do not specifically disclose a number of the protection interfaces being selected based on a probability of failure of a working interface. However, as shown in Fig. 6, each interface is associated with a corresponding fiber (working or protection), therefore, the interface can be indicated as working interface or protection interface. Since each of the working fiber and protection fiber is coupled to the interface, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made or in the design stage of the network to select the number of the protection interfaces (associated with each standby or protection fiber) based on a probability of failure of a working interface (associated with each standby or protection fiber) provide working and protection interfaces. One of ordinary skill in the art would have been motivated to do this in order to provide redundancy.

Regarding claim 3, as shown in the Fig. 6, Kuroyanagi et al show that a number of working interfaces corresponds with a number of working channels of the communications network.

Regarding claim 4, as discussed above, each working interface is adapted to translate between an electronic signal and a corresponding optical signal having a substantially fixed predetermined wavelength.

Regarding claim 5, Kuroyanagi et al discloses transmitting a predetermined wavelength as discussed above and differs from the claimed invention in that Kuroyanagi et al does not disclose that the predetermined wavelength is determined during provisioning of the interface in accordance with a design of the communications network. However, the network system, as discussed above, was design to communicate with various different sites through plurality of transmission links and interfaces. It is well known that in designing of a communication network, database of look-up table is created, containing wavelengths corresponding to different interfaces and transmission lines. Therefore, it would have been obvious to an artisan of ordinary skill at the time the invention was made to provide a predetermined wavelength of the interface during provision of the communication network. One of ordinary skill in the art would have been motivated to do such in order to set a particular wavelength to a particular interface or transmission link and in the event that a failure occur, a different wavelength can be selected by selecting a different interface.

Regarding claim 6, as discussed above, Kuroyanagi et al discloses that the predetermined wavelength corresponds with a channel wavelength of at least one working channel of the network (as shown in the figures the transmitted wavelength corresponds to transmission lines).

Regarding claim 10, Kuroyanagi et al discloses that the protection interface is adapted to translate between an electronic signal and a corresponding optical signal having a selected wavelength.

Regarding claim 11, as discussed above, Kuroyanagi et al discloses that the wavelength is dynamically selected from a set of channel wavelengths of the network (see col. 10, lines 26-39; Fig. 24B and col. 22, lines 27-31).

Regarding claim 12, as discussed above, Kuroyanagi et al shows that the protection interface comprises either one or both of:

a wide-band optical detector adapted to detect an optical signal having a wavelength corresponding to any channel wavelength of the network (since the claim requires either one or both, this part of the limitation is not considered); and

a laser adapted to generate an optical signal having the selected wavelength (shown in Fig. 24B, Kuroyanagi et al show transmission of wavelength, therefore, there must be laser adapted to generate such wavelength).

Regarding claim 16, Kuroyanagi et al disclose optical crossconnect and electrical crossconnect which comprises detector to detect a failure; a selector to select protection interface; electrical crossconnect (EXC); and optical crossconnect (PXC) (see col. 8, lines 40-67 to col. 9, lines 1-39; col. 35, lines 2-60). The combination differs from the claimed invention in that the combination does not specifically disclose controller for EXC and PXC. However, it would have been obvious to an artisan of ordinary skill in the art to provide controller for controlling EXC and PXC. One of ordinary skill in the art would have been motivated to do this in order to recover failed path.

Regarding claim 17, as discussed above, Kuroyanagi et al discloses tuner adapted to tune the selected protection interface to the predetermined wavelength of the failed interface (see col. 10, lines 26-39; Fig. 24B and col. 22, lines 27-31).

Regarding claim 18, Kuroyanagi et al disclose optical crossconnect and electrical crossconnect which comprises detector to detect a failure; a selector to select protection interface; and optical crossconnect (PXC) (see col. 8, lines 40-67 to col. 9, lines 1-39; col. 35, lines 2-60). The combination differs from the claimed invention in that the combination does not specifically disclose controller for the PXC. However, it would have been obvious to an artisan of ordinary skill in the art to provide controller for controlling PXC. One of ordinary skill in the art would have been motivated to do this in order to recover failed path.

3. Claims 7, 8, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroyanagi et al (US Patent No. 6,072,610) in view of Yin et al (US Patent no. 6,246,707).

Regarding claim 7, as discussed above and shown in Fig. 4A, Kuroyanagi et al shows laser diode (4A) for generating an optical signal having the predetermined wavelength and differ from the claimed invention in that Kuroyanagi et al does not specifically disclose that the laser is a narrow-band laser. However, laser diode which generate narrow band optical signal is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-67, Yin et al teach the use of laser which generate narrow band signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a laser which generate narrow band (i.e., narrow band laser) to the system of Kuroyanagi et al as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to provide

high conversion efficiency at high repetition rate and hence provide greater transmission capacity.

Regarding claim 8 and 14, as discussed above and shown in Fig. 24B, Kuroyanagi et al shows laser diode for generating an optical signal having the predetermined wavelength and differ from the claimed invention in that Kuroyanagi et al does not specifically disclose that the laser is a tunable laser. However, tunable laser diode is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-65, Yin et al teach the use of tunable laser. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a tunable laser to the system of Kuroyanagi et al as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to adjust the laser to output a desired wavelength.

Regarding claim 13, as discussed above and shown in Fig. 4A, Kuroyanagi et al shows laser diode for generating an optical signal having the selected wavelength and differ from the claimed invention in that Kuroyanagi et al does not specifically disclose that the laser is a narrow-band laser. However, laser diode which generate narrow band optical signal is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-67, Yin et al teach the use of laser which generate narrow band signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a laser which generate narrow band (i.e., narrow band laser) to the system of Kuroyanagi et al as taught by Yin et al. One of

ordinary skill in the art would have been motivated to do such in order to provide high conversion efficiency at high repetition rate and hence provide greater bandwidth.

Response to Arguments

4. Applicant's arguments filed 27 February 2006 have been fully considered but they are not persuasive.

Applicant argues that Kuroyanagi et al does not teach or suggest determining the number of required protection interface based upon failure probabilities of individual protection interface irrespective of path failure. The claim does not recite such limitation. Claim 1 recites "number of the protection interfaces being selected based on a probability of failure of a working interface" Furthermore, applicant argues that the prior art does not discuss the aspect of provisioning interfaces of the switch based upon probabilities of failure and none of the technical standards used by a person of skill in the art during provision of a hybrid photonic/electronic switching architecture. The claim does not recite such limitation. As shown in Fig. 6 of Kuroyanagi et al, each interface is associated with a corresponding fiber (working or protection), therefore, the interface can be indicated as working interface or protection interface. Since each of the working fiber and protection fiber is coupled to the interface, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made or in the design stage of the network to select the number of the protection interfaces (associated with each standby or protection fiber) based on a probability of failure of a working interface

(associated with each standby or protection fiber) provide working and protection interfaces. Based on these, the prior arts of record still read on the claims.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (as discussed above) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 11, 2006
Dalzid Singh.